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ABSTRACT

The purposes of the study were to (1) compare the academic performance of students entering the School of Business Administration from within the University of Washington with those transferring from another institution, and (2) equate the two groups statistically on admission criteria if significances were found. Transcripts were obtained for 229 University of Washington and 67 transfer students who had graduated from the School of Business Administration in 1980. The transfer students were found to have entered the school with significantly higher grade point averages (GPAs) and to have graduated with significantly lower junior and senior level GPA than the nontransfer students. In addition, the prediction of the latter GPA from entry GPA was significantly enhanced when group membership (transfer versus nontransfer) was included in the prediction equation. As a result, separate regression equations were computed for each group for predicting business school GPA from entry GPA, and selection indices are presented for each group based on the predicted GPAs. (MSE)

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# Development of a Selection Index for Undergraduate Admissions to the School of Business Administration

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Educational Assessment Center Project #521

## Summary

The purposes of the present study were essentially two-fold: to compare the academic performance of students who entered the School of Business Administration from within the University of Washington with those who transferred from another institution and to statistically equate the two groups on admissions criteria if significant differences were found.

Transcripts were obtained for 229 University of Washington and 67 transfer students who had graduated from the School of Business in 1980. The transfer students were found to have entered the School with significantly higher GPA's and to have graduated with significantly lower Junior and Senior level GPA's than the UW students. Furthermore, the prediction of the latter GPA from entry GPA was significantly enhanced when group membership (transfer vs UW) was included in the prediction equation.

As a result, separate regression equations were computed for each group for predicting Business School GPA from entry GPA, and Selction Indices are presented for each group based on the predicted GPA's.

Development of a Selection Index
for Undergraduate Admissions to the
School of Business Administration

Since 1974, prospective Freshmen who apply for regular admission to the University of Washington have been rank ordered on the basis of their high school grade point averages (GPA's) and college entrance examination scores. Regression studies have been performed to determine the optimal weights to apply to these two variables such that those students with the highest probability of success are admitted (Lunneborg, 1974; Gillmore, 1978; DeWolf, 1980).

Unlike freshmen entrants, transfer students from other two- and four-year post-secondary institutions were not at first subject to ranking procedures, but had to meet certain specified minima with respect to college level GPA's. Because all transfer students meeting these minima were admitted, whereas freshman entrants were subjected to a more stringent ranking procedure, a more equitable means of admission was required. To this end, prediction equations to equate the admissions standards for transfer student applicants with those of freshman applicants were developed and put in use for the first time in 1978 (see Gillmore, 1978, for a detailed description of the procedures).

Admission to the University does not assure a student of admission to the University's School of Business Administration. The School undertakes selection procedures analagous to those of the University as a whole in admitting only upper-division students to its undergraduate program. The two-year BA program is intended to be completed during students' Junior and Senior years, and requires that all applicants have completed at least 90 academic credits before entrance to the program. A minimum college GPA has been specified each year to admit a sufficient number of students to fill the available space, and the same minimum has been applied to transfer students and to students who completed their Freshman and Sophomore years at UW.

The present study was undertaken to serve two purposes. The first goal of the study was to compare the academic performance of students who

entered the School of Business Administration from with the University with the performance of students who transferred from another institution. More specifically, the study addressed the desirability of a single admissions cut-off score, used for both groups, versus the possibility of improved predictions obtained by using separate indices for each group. Secondly, if separate indices were indicated, the study sought to establish procedures to statistically equate the two groups.

## PROCEDURES

Transcripts were obtained for students who graduated from the School of Business Administration in Winter, Spring, Summer, and Autumn quarters of 1980. Two groups of students were selected for study; "UW students" were defined as those admitted with at least 90 credits from the University of Washington, and "transfer students" were those entering with at least 90 transferable credits from a two-year post-secondary institution. There was not a sufficient number of transfer students from four-year institutions to be included as a separate group, nor were students with mixed backgrounds included because of the heterogeniety of their backgrounds.

Academic performance information was obtained from the transcripts in order to perform linear regressions of Business School GPA on entry GPA. Regression equations were of the general form

$$GPA_{Business} = a + b(GPA_{Entry})$$

where b is an unstandardized regression weight and a is an additive constant. For UW students, entry GPA is the cumulative freshman and sophomore UW GPA; for transfer students, entry GPA is the cumulative GPA for 90 transfer credits. The criterion variable for both groups, Business School GPA, is the cumulative junior and senior UW GPA.

## RESULTS

Two-hundred twenty-nine UW and 67 transfer students were identified, as shown in Table 1, with roughly three times as many men as women admitted in each group. The average time to complete the program was 1.57 years for UW students and 1.94 years for transfer students; this number is

artificially reduced for the UW students because they tend to enter the program later in their academic career than do transfer students and have often completed some of the program requisites before they are officially admitted.

Table 2 presents the mean entry GPA and mean cumulative Junior and Senior year Business School GPA for both groups of students. As can be seen from the Table, UW students entered with lower mean GPA than did transfer students ($t$=6.06; df=294; $p<.001$), yet obtained a higher mean GPA in the Business School program ($t$=2.61; df=294; $p<.01$).

The intercorrelations between entry GPA and Business School GPA are shown in Table 3. The higher relationship found for UW students indicates that Business School GPA can be predicted from entering GPA more accurately for UW students than for transfer students.

The direction and the statistical significance of the mean differences strongly suggested the desirability of separate regression equations for the two groups. To further test this notion, a regression equation was computed for all students regardless of group membership. Then group membership was entered as an additional, dichotomous predictor variable. Without the group membership variable, the multiple correlation for predicting GPA from the entry GPA was .71, which was highly statistically significant ($F$=300.02, $p<.001$). The addition of the group variable increased the multiple correlation to .82, an increase of 17 per cent in explained variance. This increase was also highly significant ($F$=302.87, $p<.001$). Thus, separate equations for the two groups lead to significantly better prediction than a single prediction equation which combines both groups.

When regression equations were computed for the two groups, the results were as follows. For UW students, the obtained equation was

$$\hat{GPA}_{Business} = .5932 + .8241(GPA_{Entry})$$

with a multiple correlation of .89 and a standard error of estimate of .10. The equation for the transfer students was

$$\hat{GPA}_{Business} = .8439 + .6707(GPA_{Entry})$$

with a multiple correlation of .67 and a standard error of estimate of .18.

Table 1

Number of native UW and transfer students graduated from the School of Business Administration undergraduate program during 1980, and mean length of time in program

| | male | female | total | Length of time in program mean | SD |
|---|---|---|---|---|---|
| Native UW students | 143 | 86 | 299 | 1.57 | .40 |
| Transfer students | 39 | 28 | 67 | 1.94 | .41 |
| Total | 182 | 114 | 296 | 1.66 | .43 |

Table 2

Mean entry GPA and mean cumulative Business School GPA for native UW and transfer students

| | Entry GPA | | | Business School GPA | |
|---|---|---|---|---|---|
| | N | mean | SD | mean | SD |
| Native UW students | 229 | 3.24 | .26 | 3.26 | .24 |
| Transfer students | 27 | 3.47 | .32 | 3.17 | .32 |

Table 3

Intercorrelations between entry GPA and Business School GPA for native UW and transfer students

| | N | $r_{GPA_E=GPA_{Bus.}}$ |
|---|---|---|
| Native UW students | 229 | .89 ($p \leq .001$) |
| Transfer students | 67 | .67 ($p \leq .001$) |

The two regression lines are plotted in Figure 1. As shown in the Figure, the slope of the line for UW students is steeper than the slope of the line for transfer students, reflecting the stronger relationship between entering GPA and academic performance in the Business School program for UW students than for transfers. The equations yield higher predicted GPA for UW students than for transfer students for any entry GPA over 1.63. Because the minimum entry GPA required for admission into the Business School program in recent years has varied from 2.75 to 3.45, these results clearly indicate that native UW students will generally obtain higher Junior and Senior average cumulative GPA's than will transfer students with similar entering GPA's.

In order to provide equable admissions standards for UW and transfer students, a Selection Index ranging from 0 to 100 for entering GPA's of 0.00 to 4.00 was developed based on the regression equations for the two groups. Predicted Business School GPA's were simply multiplied by 25 for each value of entering GPA to obtain the desired range. Values of the Index for the various entering GPA's are shown in Table 4 for both groups of students.

## CONCLUSIONS

For the students of this study, transfers entered the School of Business Administration with a higher average college GPA than did the UW students. However, their average GPA was lower for the two years within the School than the corresponding average for the UW students. Furthermore, the prediction of the Business School GPA from entry GPA was significantly enhanced when group membership (transfer vs. UW) was included in the prediction equation. Thus, equitability considerations suggest that the entry GPA's of the groups should be adjusted to more nearly approximate each other.

To accomplish this equating, separate regression equations were computed for each group for predicting Business School GPA from entry GPA, and Selection Indices were developed for both groups based on the predicted GPA's yielded by each equation. To arrive at an index which conveniently ranged from 0 to 100, predicted GPA's were multipled by 25 and rounded to the nearest whole number.

Table 4

University of Washington School of Business Administration

Selection Index Table

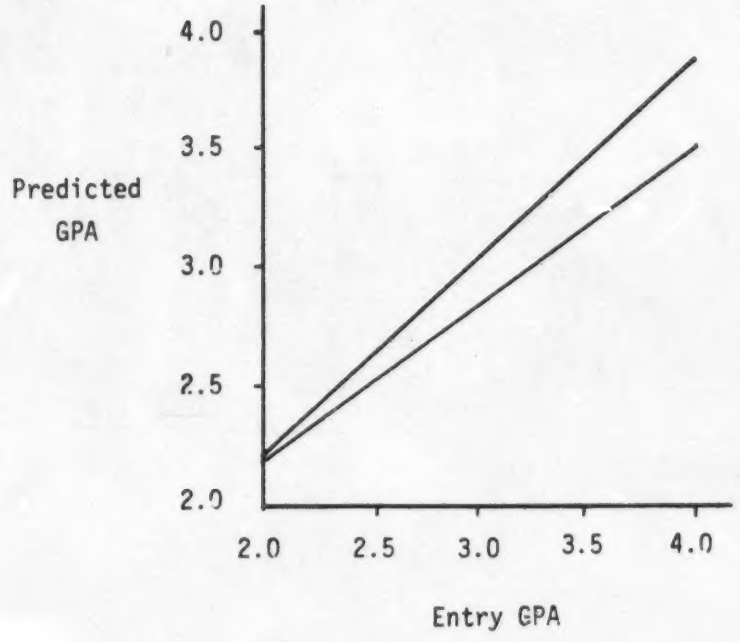
UNIVERSITY of WASHINGTON STUDENTS

| Admissions GPA | Selection Index |
|---|---|
| 2.00-2.02 | 56 |
| 2.03-2.07 | 57 |
| 2.08-2.11 | 58 |
| 2.12-2.16 | 59 |
| 2.17-2.21 | 60 |
| 2.22-2.26 | 61 |
| 2.27-2.31 | 62 |
| 2.32-2.36 | 63 |
| 2.37-2.41 | 64 |
| 2.42-2.45 | 65 |
| 2.46-2.50 | 66 |
| 2.51-2.55 | 67 |
| 2.56-2.60 | 68 |
| 2.61-2.65 | 69 |
| 2.66-2.70 | 70 |
| 2.71-2.75 | 71 |
| 2.76-2.79 | 72 |
| 2.80-2.84 | 73 |
| 2.85-2.89 | 74 |
| 2.90-2.94 | 75 |
| 2.95-2.99 | 76 |
| 3.00-3.04 | 77 |
| 3.05-3.09 | 78 |
| 3.10-3.13 | 79 |
| 3.14-3.18 | 80 |
| 3.19-3.23 | 81 |
| 3.24-3.28 | 82 |
| 3.29-3.33 | 83 |
| 3.34-3.38 | 84 |
| 3.39-3.43 | 85 |
| 3.44-3.47 | 86 |
| 3.48-3.52 | 87 |
| 3.53-3.57 | 88 |
| 3.58-3.62 | 89 |
| 3.63-3.67 | 90 |
| 3.68-3.72 | 91 |
| 3.73-3.76 | 92 |
| 3.77-3.81 | 93 |
| 3.82-3.86 | 94 |
| 3.87-3.91 | 95 |
| 3.92-3.96 | 96 |
| 3.97-4.00 | 97 |

COMMUNITY COLLEGE STUDENTS

| Admissions GPA | Selection Index |
|---|---|
| 2.00-2.05 | 55 |
| 2.06-2.11 | 56 |
| 2.12-2.17 | 57 |
| 2.18-2.23 | 58 |
| 2.24-2.29 | 59 |
| 2.30-2.34 | 60 |
| 2.35-2.40 | 61 |
| 2.41-2.46 | 62 |
| 2.47-2.52 | 63 |
| 2.53-2.58 | 64 |
| 2.59-2.64 | 65 |
| 2.65-2.70 | 66 |
| 2.71-2.76 | 67 |
| 2.77-2.82 | 68 |
| 2.83-2.88 | 69 |
| 2.89-2.94 | 70 |
| 2.95-3.00 | 71 |
| 3.01-3.06 | 72 |
| 3.07-3.12 | 73 |
| 3.13-3.18 | 74 |
| 3.19-3.24 | 75 |
| 3.25-3.30 | 76 |
| 3.31-3.36 | 77 |
| 3.37-3.42 | 78 |
| 3.43-3.48 | 79 |
| 3.49-3.54 | 80 |
| 3.55-3.60 | 81 |
| 3.61-3.66 | 82 |
| 3.67-3.72 | 83 |
| 3.73-3.78 | 84 |
| 3.79-3.84 | 85 |
| 3.85-3.90 | 86 |
| 3.91-3.96 | 87 |
| 3.97-4.00 | 88 |

Figure 1. Regression of Business School GPA on Entry GPA for Native UW and Two-year Transfer Students



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